CLAIMS

1. An optical information recording medium in which light is projected in a spot to thereby record/reproduce information and in which at least a recording layer and a light-transmitting layer are disposed in this order on a substrate having a guide groove for tracking of the spotted light and in which the light is projected in the spot to the recording layer from the side of the light-transmitting layer to record the information both in a first portion of the recording layer corresponding to the inside of the guide groove and a second portion of the recording layer corresponding to a flat portion between mutually adjacent guide grooves,

wherein assuming that a wavelength of the light is λ, and an index of refraction of the light-transmitting layer in the wavelength λ is nf, a depth d of the first portion with respect to the second portion in the surface of the recording layer on the side of the light-transmitting layer satisfies a relation of $\lambda/5.8nf \leq d \leq \lambda/5nf$, and a reflectance of the recording layer after the recording is larger than that before the recording.

2. The optical information recording medium according to claim 1, wherein the depth d is substantially equal to a depth of the inside of the guide groove with respect to the flat portion between the guide grooves.

3. The optical information recording medium according to claim 1, wherein a dielectric layer exists between the substrate and the recording layer.

4. The optical information recording medium according to claim 3, wherein a reflective film exists between the substrate and

the dielectric layer.

5. The optical information recording medium according to claim 1, wherein a dielectric layer exists between the recording layer and the light-transmitting layer.

6. An optical information recording medium in which light is projected in a spot to thereby record/reproduce information and in which at least a recording layer is disposed on a substrate having a guide groove for tracking of the spotted light and in which the light is projected in the spot to the recording layer from the side of the substrate to record the information both in a first portion of the recording layer corresponding to the inside of the guide groove and a second portion of the recording layer corresponding to a flat portion between mutually adjacent guide grooves,

wherein assuming that a wavelength of the light is λ, and an index of refraction of the substrate in the wavelength λ is ns, a depth D of the second portion with respect to the first portion in the surface of the recording layer on the side of the substrate satisfies a relation of $\lambda/5.8ns \leq D \leq \lambda/5ns$, and a reflectance of the recording layer after the recording is larger than that before the recording.

7. The optical information recording medium according to claim 6, wherein the depth D is substantially equal to a depth of the inside of the guide groove with respect to the flat portion between the guide grooves.

8. The optical information recording medium according to claim 6, wherein a reflective film exists on the side of the recording layer opposite to the substrate.

9. The optical information recording medium according to claim 6, wherein a dielectric layer exists between the substrate and

the recording layer.

10. An optical information recording medium in which light is projected in a spot to thereby record/reproduce information and in which at least a recording layer is disposed on a substrate having a guide groove for tracking of the spotted light and in which the information is recorded both in a first portion of the recording layer corresponding to the inside of the guide groove and a second portion of the recording layer corresponding to a flat portion between mutually adjacent guide grooves,

wherein assuming that: a quantity of reflected light at a time when the light is applied to a non-recording region in which alternate arrangement of the guide groove and the flat portion between the guide grooves is not formed is I_1; and quantities of the reflected light at a time when the light is applied to a portion corresponding to the inside of the guide groove and a portion corresponding to the flat portion between the guide grooves in an information non-recorded state on the same conditions are I_2 and I_3, respectively, a value of $R = 0.5(I_2+I_3)/I_1$ is 0.55 to 0.7, and a reflectance of the recording layer after the recording is larger than that before the recording.

11. The optical information recording medium according to claim 10, wherein a dielectric layer exists between the substrate and the recording layer.

12. The optical information recording medium according to claim 11, wherein a reflective film exists between the substrate and the dielectric layer.

13. The optical information recording medium according to claim 10, wherein a dielectric layer exists on the side of the recording layer opposite to the substrate.

14. The optical information recording medium according to claim 13, wherein a reflective film exists on the side of the dielectric layer opposite to the recording layer.

15. An optical information recording/reproducing method having the step of projecting light having a wavelength of 390 to 440 nm in a spot to both a first portion and a second portion of a recording layer of the optical information recording medium according to any one of claims 1 to 14 using an objective lens having a numerical aperture of 0.8 to 0.9 to thereby record/reproduce information.

16. An optical information recording/reproducing device having an optical head which projects light in a spot to both a first portion and a second portion of a recording layer of the optical information recording medium according to any one of claims 1 to 14, the optical head having a semiconductor laser which emits light having a wavelength of 390 to 440 nm and an objective lens having a numerical aperture of 0.8 to 0.9.